

REMARKS

Applicants acknowledge receipt of the Office Action dated April 21, 2005. Claims 1-75 are pending, and claims 63-75 have been withdrawn in the Application. By this Response, claims 1, 22, 23, 30, and 32 are amended. The Examiner has objected to claims 1, 22, 30, and 32 for informalities. The Examiner has rejected claims 1-20 and 23 under 35 U.S.C. § 112 as being indefinite. In addition, the Examiner has rejected claims 1-3, 6-11, 13-28, 30, 32-36, 40-45, 47-49, 51-55, 57-60, and 62 under 35 U.S.C. § 103 as being unpatentable over Hindin et al., U.S. Patent No. 3,993,572 ("Hindin"). Furthermore, the Examiner has rejected claims 4-5, 29, 37-38, 56, and 61 under 35 U.S.C. § 103 as being unpatentable over *Hindin* as applied to claims 1-3, 6-11, 13-28, 30, 32-36, 40-45, 47-49, 51-55, 57-60, and 62, and further in view of Bellussi et al., U.S. Patent No. 6,596,667 ("Bellussi"). In addition, the Examiner has objected to claims 12, 31, 39, 46, and 50 as being dependent upon a rejected base claim but allowable if rewritten in independent form to include the limitations of the base and any intervening claims. Applicants believe that claims 1-62 are now allowable over the art of record and respectfully request reconsideration and allowance of these claims.

II. Claims 1, 22, 30, and 32 are allowable.

The Examiner objected to claims 1, 22, 30, and 32 because of informalities. By this Response, claims 1, 22, 30, and 32 have been amended as suggested by the Examiner. Therefore, Applicants respectfully request the Examiner to remove the objections to these claims.

Applicants would further like to point out that claim 1 has been amended to recite "wherein one rare-earth metal is essentially trivalent." Such an amendment is not to overcome any art but instead for purposes of clarity.

II. Claims 1-20 and 23 are not indefinite.

The Examiner has rejected claims 1-20 and 23 under 35 U.S.C. § 112 as being indefinite. Claim 1 is an independent claim upon which claims 2-20 depend. The Examiner has rejected claim 1 in regards to the recitation of "creating a surface coverage." The Examiner states that "[i]t appears that a coating of alumina is partially covered on the surface of the rare-earth metal oxide, but the claim does not particularly point out so." (Office Action, page 3, para. 5.A.) Please note that claim 1 does not recite such a "coating of alumina" that "is partially covered on the surface of the rare-earth metal oxide," but instead claim 1, as amended, recites "wherein said surface coverage coats the alumina at least partially" with the "surface coverage comprising an oxide of said rare-earth metal." Therefore, Applicants respectfully submit that it is clear in claim 1 as to what the Applicants recite.

The Examiner further rejects claim 1 because "[t]here is insufficient basis" for the limitation "said coverage coating." Claim 1 has been amended to recite "wherein said surface coverage coats the alumina at least partially." Antecedent basis for such a recitation is provided in claim 1, line 11 by the recitation "creating a surface coverage." Applicants therefore submit that claim 1 has proper antecedent basis. Therefore, Applicants respectfully submit that independent claim 1 is allowable, and that dependent claims 2-20 are also allowable as they carry with them all the limitations of the independent claim to which they ultimately refer.

The Examiner has rejected claim 23 because "the phrase 'mostly' does not particularly point out the amount or concentration for the 'theta-alumina.'" (Office Action, page 3, para. 5.C.) Claim 23 has been amended to remove the recitation "mostly." Therefore, Applicants respectfully request the Examiner to remove the rejection to claim 23 and allow the claim.

III. Claims 1-3, 6-11, 13-28, 30, 32-36, 40-45, 47-49, 51-55, 57-60, and 62 are patentable over *Hindin*.

The Examiner has rejected claims 1-3, 6-11, 13-28, 30, 32-36, 40-45, 47-49, 51-55, 57-60, and 62 as being unpatentable under 35 U.S.C. § 103 over *Hindin*. Applicants submit that, contrary to MPEP § 2143, the Examiner has failed to make out a *prima facie* case of obviousness in rejecting the claims in that the Examiner has failed to cite references that teach or suggest all of the elements recited in the rejected claims.

Claims 1, 21, 32, and 49 are independent claims upon which claims 2-3, 6-11, 13-20, 22-28, 30, 33-36, 40-45, 47-48, 51-55, 57-60, and 62 depend.

III.A. Claim 1

Claim 1 recites "converting at least a portion of the aluminum-comprising material to an alumina comprising at least one alumina phase selected from the group consisting of delta-alumina, theta-alumina, and combination thereof" and "creating a surface coverage comprising an oxide of said rare-earth metal, wherein said surface coverage coats the alumina at least partially." Nothing in *Hindin* recites converting at least a portion of the aluminum-comprising material to an alumina comprising at least one alumina phase selected from the group consisting of delta-alumina, theta-alumina, and combination thereof and creating a surface coverage comprising an oxide of said rare-earth metal, wherein said surface coverage coats the alumina at least partially. Instead, *Hindin* teaches calcining a "rare earth metal oxide-alumina mixture" and adding such a mixture to an inert support. (*Hindin*, col. 3, lns. 51-56) Such teachings of *Hindin* include that "[p]referably, an aqueous solution of a rare earth metal salt is mixed with finely divided alumina . . . and the composite is calcined to provide the mixed oxides. These mixed oxides then may be used as a catalytically-active slip on a substantially catalytically-inert substrate or they may be pelleted

or extruded in a conventional manner." (*Hindin*, col. 6, lns. 57-63) Moreover, *Hindin* teaches away from using a rare-earth metal oxide to coat the alumina but instead teaches that a rare-earth metal oxide must be applied as a rare earth metal oxide-alumina mixture. (*Hindin*, col. 6, lns. 16-21) For instance, teachings of *Hindin* include "the rare earth metal oxide if used alone will not provide sufficient surface area to show catalytic activity; thus a mixture with alumina is required." (*Hindin*, col. 6, lns. 18-21, emphasis added) Further instances of such contrary teachings of *Hindin* include "[d]uring the pre-calcination of the rare earth metal oxide and alumina . . . these oxides are preferably in intimate admixture." (*Hindin*, col. 6, lns. 43-48, emphasis added)

Furthermore, *Hindin* does not teach or suggest the claim 1 recitation "alumina comprising at least one alumina phase selected from the group consisting of delta-alumina, theta-alumina, and combination thereof." Instead, in regards to the support of *Hindin*, *Hindin* teaches examples of suitable refractory oxides for use in the support to include "sillimanite, magnesium silicates, zircon, petalite, alpha-alumina, and aluminosilicates." (*Hindin*, col. 9, lns. 54-56) Therefore, Applicants respectfully submit that claim 1 is allowable over *Hindin*.

III.B. Claim 21

Claim 21 recites "an alumina material comprising optionally gamma-alumina, and an alumina phase selected from the group consisting of theta-alumina, delta-alumina, eta-alumina, rho-alumina, chi-alumina, kappa-alumina, and any combinations thereof" and "a surface coverage comprising an oxide of at least one rare-earth metal, wherein said coverage coats the alumina material at least partially, and wherein one rare-earth metal is essentially trivalent." Nothing in *Hindin* recites all of such recitations. As noted in III.A. above, *Hindin* does not teach such recitations. Moreover, *Hindin* teaches to the contrary by teaching that a rare earth metal

oxide must be applied as a rare earth metal oxide-alumina mixture. (*Hindin*, col. 6, lns. 16-21)

Therefore, Applicants respectfully submit that claim 21 is allowable over *Hindin*.

III.C. Claim 32

Claim 32 recites "a rare-earth oxide modified catalyst support including at least one alumina material comprising an alumina phase selected from the group consisting of delta-alumina, theta-alumina, and combination thereof; and optionally gamma-alumina" and "a surface coverage comprising an oxide of at least one rare-earth metal, wherein said coverage coats the alumina material at least partially." As noted in the remarks above in sections III.A. and III.B., nothing in *Hindin* teaches or suggests all such recitations but instead *Hindin* teaches to the contrary.

III.D. Claim 49

Claim 49 recites "wherein the rare-earth oxide modified catalyst support includes at least one alumina material comprising an alumina phase selected from the group consisting of theta-alumina, delta-alumina, eta-alumina, rho-alumina, chi-alumina, kappa-alumina, and any combinations thereof; and optionally gamma-alumina" and "a surface coverage comprising an oxide of at least one rare-earth metal, wherein said coverage coats the alumina material at least partially, and wherein one rare-earth metal is essentially trivalent." As noted in the remarks above in the subsections of section III., nothing in *Hindin* teaches or suggests all such recitations, but *Hindin* instead teaches to the contrary.

In view of the recitations in claims 1, 21, 32, and 49, all of which are neither taught nor suggested by *Hindin*, the Applicants respectfully request that the Examiner withdraw the § 103 rejections and allow claims 1, 21, 32, and 49. Applicants further request that the Examiner also withdraw the § 103 rejections of dependent claims 2-3, 6-11, 13-20, 22-28, 30, 33-36, 40-45, 47-

48, 51-55, 57-60, and 62, since it is submitted that independent claims 1, 21, 32, and 49 are allowable. Dependent claims 2-3, 6-11, 13-20, 22-28, 30, 33-36, 40-45, 47-48, 51-55, 57-60, and 62 must *a fortiori* also be allowable, since they carry with them all the limitations of the independent claims to which they ultimately refer.

IV. Claims 4-5, 29, 37-38, 56, and 61 are patentable over *Hindin* in view of *Bellussi*.

The Examiner has rejected claims 4-5, 29, 37-38, 56, and 61 under 35 U.S.C. § 103 as being unpatentable over *Hindin* as applied to claims 1-3, 6-11, 13-28, 30, 32-36, 40-45, 47-49, 51-55, 57-60, and 62, and further in view of *Bellussi*. Applicants submit that, contrary to MPEP section 2143, the Examiner has failed to make a *prima facie* case of obviousness in rejecting such claims in that the Examiner has failed to cite references that teach or suggest all of the elements recited in the rejected claims.

Claims 4-5, 29, 37-38, 56, and 61 are dependent upon independent claims 1, 21, 32, and 49, respectively. As pointed out in Section III above, independent claims 1, 21, 32, and 49 are allowable over *Hindin*. The missing limitations noted above in Section III cannot be supplied by *Bellussi*. *Bellussi* teaches a supported cobalt-based catalyst having a carrier comprising aluminum oxide that is suitable for application in a gas-liquid-solid fluidized reactor. (*Bellussi*, col. 3, lns. 16-27) Nowhere does *Bellussi* teach or suggest all of the missing limitations of claims 1, 21, 32, and 49. For instance, *Bellussi* does not teach or suggest claim 1 recitations "converting at least a portion of the aluminum-comprising material to an alumina comprising at least one alumina phase selected from the group consisting of delta-alumina, theta-alumina, and combination thereof" and "creating a surface coverage comprising an oxide of said rare-earth metal, wherein said surface coverage coats the alumina at least partially." Therefore, nothing in

Hindin in view of *Bellussi* teaches or suggests all of the elements of claim 1, 21, 32, and 49, and thus ultimately as recited in claims 4-5, 29, 37-38, 56, and 61.

V. Claims 12, 31, 39, 46, and 50 are allowable.

The Examiner has objected to claims 12, 31, 39, 46, and 50 "as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims." (Office Action, page 8, para. 9) Applicants note that claim 12 was rejected by the Examiner as being indefinite. However, as noted in section II above, claim 12 is not indefinite.

Claims 12, 31, 39, 46, and 50 are dependent upon independent claims 1, 21, 32, and 49, respectively. As noted above, independent claims 1, 21, 32, and 49 are allowable. Consequently, claims 12, 31, 39, 46, and 50 must also be allowable as they carry with them all the limitations of such independent claims, respectively. Therefore, Applicants respectfully request the Examiner to remove the objections to such claims and allow them.

VI. Conclusion

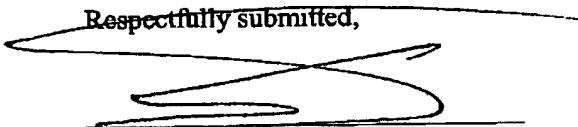
Applicants respectfully request reconsideration, allowance of the pending claims and a timely Notice of Allowance be issued in this case. If the Examiner feels that a telephone conference would expedite the resolution of this case, the Examiner is respectfully requested to contact the undersigned.

In the course of the foregoing discussions, Applicants may have at times referred to claim limitations in shorthand fashion, or may have focused on a particular claim element. This discussion should not be interpreted to mean that the other limitations can be ignored or dismissed. The claims must be viewed as a whole, and each limitation of the claims must be considered when determining the patentability of the claims. Moreover, it should be understood

that there may be other distinctions between the claims and the prior art which have yet to be raised, but which may be raised in the future.

If any fees are inadvertently omitted or if any additional fees are required or have been overpaid, please appropriately charge or credit those fees to Conley Rose, P.C. Deposit Account Number 03-2769.

Respectfully submitted,


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